25X1

CLASSIFICATION CONFIDENTIAL

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

REPORT [redacted]

CD NO.

COUNTRY	USSR	DATE DISTR.	28 Mar 50
SUBJECT	Effect of Carbon Content on High Temperature Strength of 14% Cr, 14% Ni, 2.5% W Steel	NO. OF PAGES	1
PLACE ACQUIRED	[redacted]	NO. OF ENCLS. (LISTED BELOW)	
DATE ACQUIRED	[redacted]	SUPPLEMENT TO REPORT NO.	
DATE OF I[redacted]			

25X1

[redacted]

THIS IS UNEVALUATED INFORMATION

25X1

[redacted] translation of an article entitled "Effect of Carbon Content on High Temperature Strength of 14% Cr, 14% Ni, 2.5% W Steel" by A Borzdika and K Lanskaya which appeared in "Metallurg", Vol 15, 1940 #10, pages 25-31. The article discusses the following subjects:

a) Investigation of 14% Cr, 14% Ni, 2.5% W steel having carbon contents of .45, .22 and .13%.

b) Melting of experimental steels and preparation of specimens.

c) Metallographic study.

d) Effect of temperature and duration of aging upon hardness and notch toughness.

e) Brittleness and stability of structure at elevated temperatures. Mechanical properties at ordinary and high temperatures. Creep behavior.

f) Advantages of 14-14 steel with .1-.2% C over 14-14 steel with .45% C for applications requiring high ductility, such as drawn tubes.

-end-

CLASSIFICATION CONFIDENTIAL [redacted]

25X1

STATE	X	NAVY	X	NSRB		DISTRIBUTION						
ARMY	X	AIR	X	FBI								

A. Borzdika and K. Lanskaya:

EFFECT OF CARBON CONTENT ON HIGH TEMPERATURE STRENGTH OF 14% CHROMIUM 14% NICKEL STEEL.

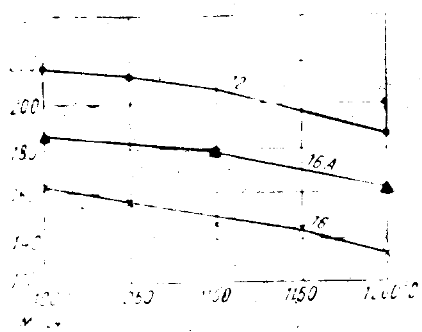

Fig. 1- Effect of quenching temperature upon hardness.

Fig. 2- Steel 16 A with .22% C; quenched from 1100° C (2010° F); 500X.

Fig. 3- Steel 16 with .13% C; quenched from 1100° C (2010° F); 500X.

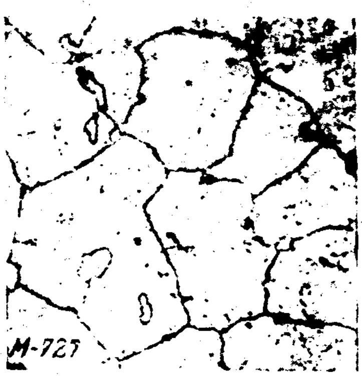

Fig. 4- Steel 12 with .45% C; quenched from 1200° C (2190° F); 500X

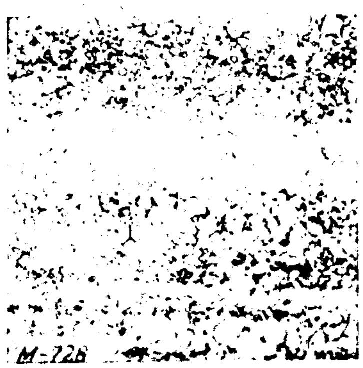

Fig. 5- Steel 12 with .45% C; as rolled; longitudinal section; 100X.

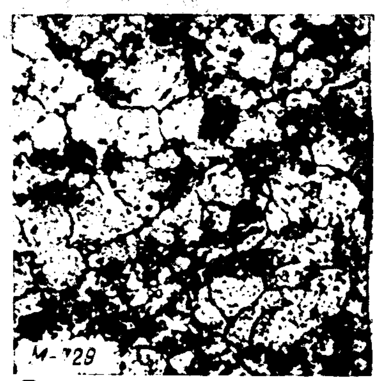

Fig. 6- Steel 12; aged for 100 hours at 600°C (1110° F); 500X.

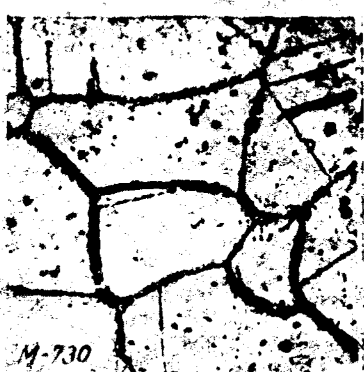

Fig. 7- Steel 16; aged for 100 hours at 600° C (1110° F); 500X.

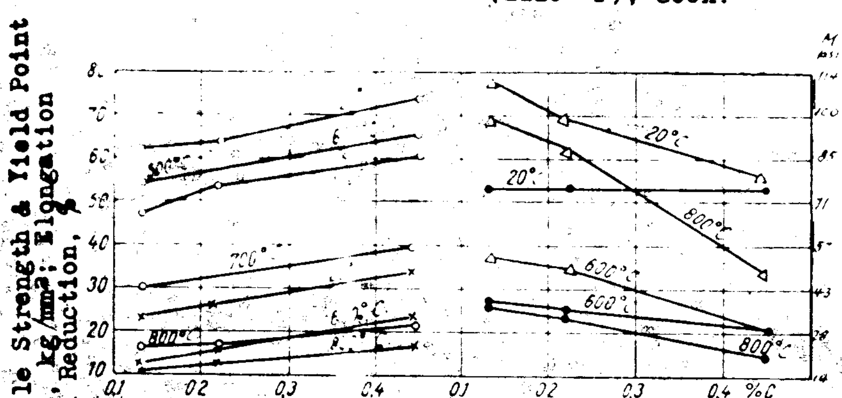

Fig. 8- Effect of carbon content in 14-14 steel on mechanical properties at different temperatures.

∘ Tensile strength; × yield point; • elongation △ reduction

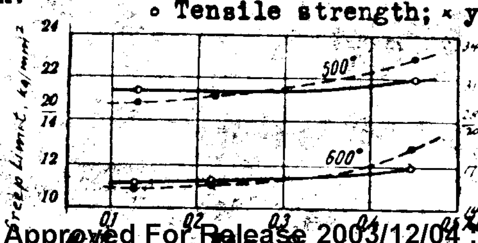

Fig. 9- Influence of carbon content in 14-14 steel upon creep limit. Solid lines: tension; broken lines: torsion.

EFFECT OF CARBON CONTENT ON HIGH TEMPERATURE STRENGTH OF 14% Cr, 14% Ni, 2.5% W STEEL

By A. Borzdika and K. Lanskaya

[Translated from METALLURG, vol. 15, # 10, pp. 25-31

Synopsis:

Investigation of 14% Cr, 14% Ni, 2.5% W steel having carbon contents of .45, .22, and .13%.

Melting of experimental steels, and preparation of specimens.

Metallographic study.

Effect of temperature and duration of aging upon hardness and notch toughness.

Brittleness and stability of structure at elevated temperatures. Mechanical properties at ordinary and high temperatures. Creep behavior.

Advantages of 14-14 steel with .1-.2% C over 14-14 steel with .45% C for applications requiring high ductility, such as drawn tubes.

Among the high alloy steels which in recent years have found wide application as high temperature strength materials, the austenitic 14% Cr, 14% Ni steel may be mentioned which was first brought out by Fried. Krupp A.G. in 1932.

In this country, 14-14 steel is being made in two modifications: (1) with a silicon content of from .3 to .8% and with a small addition of molybdenum, of the order of .5% (Elektrostal Type EI 69) and (b) with the silicon content increased to 1.8%, but without molybdenum (Leningrad Type CXHB), a composition corresponding to the original WF 100 steel.

Owing to its high mechanical properties at increased temperatures, this steel has found ready acceptance especially for valves of large internal combustion engines and for steam turbine blades. In the cold state, 14-14 steel is characterized by its high mechanical strength coupled with still greater ductility; when taking into account all of the mechanical properties, this steel is in no way inferior to the best types of high-alloy austenitic steels.[1,2,3]

It is an unfortunate fact that the ductile properties of 14-14 steel deteriorate appreciably at temperatures from 700 to 900° C (1290-1650° F), with the elongation decreasing to 12% and the reduction of area, to 20-22%. Another drawback of this steel, if its carbon content is in the neighborhood of .5% consists in its propensity to carbide segregation.

The present study was undertaken to throw light on the possibility of decreasing the carbon content in the two

Russian variants of this steel in order to improve the plasticity in the hot state, while retaining the other mechanical properties more or less unimpaired.

1- Steels Studied.

The experimental steels were melted at the Elektrostal works. The steel with the conventional composition (No. 12 in Table 1) was made in a basic-lined 3-ton Héroult furnace while the steels with decreased carbon contents (No. 16-A and 16) were melted in a laboratory high frequence furnace.

Table 1- Chemical Composition, Grain Growth Range and Quenching Temperature of Steels Studied.

	12	16-A	16
Carbon .... %	.45	.22	.13
Silicon .... %	.69	.71	.67
Manganese .... %	.47	.60	.60
Chromium .... %	13.80	14.50	14.50
Nickel .... %	14.50	14.50	14.00
Tungsten .... %	2.25	2.35	2.40
Molybdenum .... %	.54	.46	.45
Grain growth takes place between	1150 and 1200° C	1100 and 1150° C	1050 and 1100° C
Quenching (with 30 min. holding) at	1100° C water	1100° C air	1050° C air

Preparatory to forging into square sections, 40 mm (1.6 inch) in size, the 50-kg (110-lb) ingots were heated for four hours at 700-750° C (1290-1380° F) and held for one hour in a chamber having a temperature of 1160-1170° C (2120-2140° F); this was done in consideration of the high alloy content and the low thermal conductivity of the steels. The ingots which were soft and ductile, lent themselves well

to forging and did not develop any cracks; the final forging temperature was not lower than 850° C (1560° F). After the forging, the steel was rolled to rounds, 20 mm (.787") in diam. and subjected to a preliminary heat treatment consisting of heating to 850° C (1560° F), holding for one hour; heating to 1180° C (2155° F) and holding for 45 minutes. The finished rounds were then cooled while piled up in stacks.

2- Thermal-Metallographic Study.

In any consideration of the influence of carbon upon the microstructure of 14-14 steel, it is necessary to enlarge on two different aspects:

(1) Carbon exerts a beneficial influence as a stabilizer of the austenite: There is no α-phase which would increase the number of phases of the system thus lowering the chemical stability and mechanical strength of the steel at elevated temperatures. The single-phase character of Cr-Ni steels with relatively low nickel contents can be attained by the incorporation of a sufficient quantity of carbon into the steel. Thus, for instance, in 18-8 steel containing .5% C an austenitic structure may be obtained at 20° C (68° F) while in the carbon-free alloy, at room temperature, the two-phase structure $\alpha + \gamma$-iron is stable.

(2) An increased carbon content in steels of this type destined for service at elevated temperature is undesirable as under the conditions of temperature in question, it can be expected that carbides will precipitate along the grain junctions; in other words, the carbon destroys the stability of the austenite.[3,4]

The changes in the structure of the steels under investigation, when quenched from 1000 to 1300° C (1830-2370° F) proceed in two directions: (a) There is a growth

of the austenite grain[5] and (2) a solution of the carbides in the austenite.

The dissolution of the carbide leads to a gradual decrease of the hardness as the quenching temperature is increased (Fig. 1). Steel 16 with .13% C shows the lowest hardness at all temperatures of quenching.

Below 1000° C (1830° F), no changes whatever (neither a solution of carbide nor a growth of the grain) occur in any of the three steels.

At 1100° C (2010° F), part of the carbide undergoes dissolution; the grain size, when compared with the specimens quenched from 1000° C (1830° F) changes very little in Steels 12 and 16-A (Fig. 2). In the micro of Steel 16 quenched from 1100° C, an abrupt growth of the grain (Fig. 3) is evident which indicates that the critical coarsening temperature is within the interval of 1050-1100° C (1920-2010° F).

Upon heating to 1150° C (2100° F), the austenite grains increase appreciably also in the two other steels; in Steel 16, however, their size is considerably larger. In Steels 12 and 16-A, the quantity of carbide is very much reduced & whatever carbide has remained undissolved, coagulates.

At a temperature of 1200° C (2190° F), almost all of the carbide has dissolved in Steel 16-A, while in Steel 12, coagulated carbide still can be found (Fig. 4).

Thus, the temperature of rapid grain growth is different for each steel, being a function of the carbon content (see Table 1 on page 3).

Steel 12 contains the largest quantity of carbide and has a considerably finer grain at elevated temperatures; this can be explained by the fact that the carbide impedes the growth of the grain during heating. The amount of carbide in the melts with .22% C and especially, .13% C, of course, is smaller and the grain is larger.

On the basis of the results of a microexamination, the heat treatments indicated in Table 2, have been selected.

Table 2- Influence of Temperature and Duration of Aging upon Hardness (H_3) and Notch Toughness (a_k) of Steels under Investigation.

Holding Time Hours	Steel 12			Steel 16-A			Steel 16		
	H_B	a_k mkg/cm²	ft-lb/in²	H_B	a_k mkg/cm²	ft-lb/in²	H_B	a_k(1) mkg/cm²	ft-lb/in²
As-quenched	207	9	420	163	min.19	> 885	137	min.19	min.885
				Aging at 650° C (1200° F)					
100	207	6.6	307	207	11.8	550	153	14.8	690
250	207	6.8	317	257	11.8	550	156	12.4	578
500	207	6.9	321	207	12.3	573	156	14.2	662
1000	207	6.7	312	197	11.6	541	156	13.6	634
				Aging at 600° C (1110° F)					
100	207	6.7	312	156	min.19	885	143	min.19	min.885
250	217	7.8	363	207	13.3	620	147	min.19	min.885
500	207	6.4	298	217	9.5	443	156	17.3	806
1000	207	6.6	307	213	9.1	424	156	17.5	815
				Aging at 500° C (930° F)					
100	207	7.3	340	156	min.19	885	131	min.19	
250	215	7.0	326	156	min.19	885	134	min.19	min.885
500	207	6.2	289	163	17.3	806	143	min.19	
1000	217	6.7	312	163	17.5	815	156	min.19	

(1) 10x10 mm (.39x.39") specimens with Mesnager notch; The value of min. 19 mkg/cm² means that the specimen did not break under the 15 mkg hammer. The notch toughness in the initial state is assumed to be 20 mkg/cm² (930 ft.lb/in²)

When subjecting longitudinal polished sections of Steel 12 to microexamination in their initial state, a marked axial carbide segregation could be observed (Fig. 5). Upon quenching from 1200° C (2190° F), the carbide strings did not disappear entirely; the carbide, however, coagulated.

In Steel 16-A, also, axial carbide segregation was found, although to a much smaller extent. There was no such segregation in Steel 16. In Steels 12 and 16-A, however, it may exert an adverse effect on the ductility.

3- Brittleness and Structural Stability at Increased Temperatures.

By brittleness at increased temperature, the loss in notch toughness is meant that is suffered by steel after more or less prolonged exposure to heat. The brittleness of austenitic steel at high temperature is ordinarily explained by the precipitation of carbide along the austenite grain junctions.[6] The stability of the structure and the brittleness at increased temperature of the steels under investigation were studied by prolonged heating for 100, 250, 500, and 1000 hours at 500, 600, and 650° C (930, 1110, and 1200° F).

The changes in structure that occur in a 14-14 steel in aging are two-fold: (1) Carbide is precipitated along the junctions and inside of the grain, and (2) The carbides coagulate as the holding time is extended.

Prolonged holding (500-1000 hours with Steel 12) at 600-650° C (1110-1200° F), evidently, facilitates the

coagulation of the carbide although coagulation is known to occur with short holdings within the range of 800-900° C (1470-1650° F). An inspection of the microstructure of Fig. 6 makes it clear that in Steel 12 a partial coagulation of the carbide takes place as early as after a 100 hour holding at 600° C (1110° F); next to coarse carbides, there are found many fine ones. A maximum coagulation of the carbide is obtained by holding for 500 and 1000 hours (at 500, 600, and 650° C).

At the temperature of 600° C (1110° F), a maximum carbide precipitation takes place. At this temperature, the hardness is highest (Table 2, page 6).

As may be seen from Fig. 7, finely dispersed carbides precipitate out in Steels 16 and 16-A. Steel 12 (when quenched from 1100° C or 2010° F) shows a maximum hardness which remains almost unchanged with varying temperatures and times of holding. In Steel 16-A, also, the hardness increases little after aging at 500° C (930° F) probably because at 500° C, there is no carbide precipitation as yet. The greatest increase in hardness with Steel 16 is observed after aging at 600° C (1110° F) which tallies with the notch toughness test data (Table 2). As the temperature and duration of holding are increased for Steel 16, there is a small increase in hardness.

The results of the notch toughness tests are shown in Table 2 (page 6). Steel 16 gives a minimum notch toughness of 12.4 mkg/cm^2 (578 $ft\text{-}lb/in^2$); this value is obtained

with a holding time of 250 hours at a temperature of 650° C (1200° F). The greatest drop of the initial hardness with Steel 16-A, i.e. 38%, is found at 650° C (1200° F). Steel 12 possesses the lowest values of notch toughness of all the three steels; after an initial small decrease, the notch toughness of this steel shows practically no change with the different temperatures and times of holding (variation from 6.2 to 7.3 mkg/cm² or 289-340 ft-lb/in²).

4- Mechanical Properties and High Temperature Strength.

The mechanical properties and the high temperature strength of the steels in question were determined after quenches as given in Table 1 (page 3). The tensile tests were made on Gagarin presses at 20, 600, 700, & 800° C (68, 1110, 1290, 1470° F) on specimens 6 mm (.236") in diameter and 60 mm (2.36") in length. The fluctuations of the temperature during testing did not exceed ± 5° C (9.0° F). The specimens were heated in an electric resistance furnace with a Nichrome coil.

It was found that yield point, tensile strength, elongation and reduction values become smaller as the temperature is raised; this applies to all three steels (Fig. 8). Tensile strength and yield point show an especially pronounced drop at 800° C (1470° F) as the temperature of recrystallization of austenitic alloy steels is between 800 and 900° C (1470 and 1650° F).

The ductility (elongation and reduction of area) values fall off with increasing temperature because of the precipitation

of (structurally) free carbide from the γ-solution; for Steel 2169 of standard analysis(3) this occurs as early as at 600° C (1110° F). The further decrease of the elongation is slower; with Steel 16, it is practically stopped. This indicates that the main portion of the carbides actually precipitates from the solid solution at 600-700° C (1110-1290° F).

The decrease of the carbon content of the steels at all of the temperatures studied results in a drop of the values of tensile strength and yield point and a pronounced increase of the ductility (Table 3).

When studying the test data, it may be seen that Steels 16 and 16-A are very much alike, especially in regard to the mechanical strength at 800° C (1470° F) and the ductile properties at 600° C (1110° F).

Table 3- Decrease in Mechanical Strength and Increase in Ductility as Function of Drop of Carbon Content of 14-14 Steel from .43 to .13% C, in %.

Temperature °C	°F	Tensile Strength –	Yield Point –	Elongation +	Reduction of Area +
20	68	16	31	0	28
600	1110	23	44	26	43
800	1470	27	33	45	50

5- Creep Behavior.

The creep tests were carried out in the form of torsion and tensile tests at 500° C under a load of 20-25 kg/mm² (28400-35600 psi) and at 600° C (1110° F) under a load of 10-18 kg/mm² (14200-25600 psi). Before being tested, the

specimens were heat treated (see Table 1, page 3) in order to remove the hardness left from cold working; after that, they were brought to final dimensions.

The duration of the torsion tests, which were preliminary in character, was 48 hours; the tension tests lasted 1000 hours. As basic criterion for the comparative evaluation of the creep resistance, a rate of creep of 10^{-6} mm/mm or 10^{-4}% per hour was used. The "creep limits" thus found for the steels studied have been plotted in Fig. 9.

At a temperature of 500° C (930° F), the greatest resistance to creep (22-23 kg/mm² or 31300-32700 psi) is shown by Steel 12. Steels 16 and 16-A have a slightly higher creep (creep limit of about 21 kg/mm² or 29900 psi); as may be seen from Fig. 9, however, the difference is small.

At 600° C (1110° F), the highest resistance to creep, again is found in Steel 12 which has a creep limit, with tension, of about 12 kg/mm² (17100 psi) and with torsion, of about 13 kg/mm² (18500 psi). Steel 16-A was tested only by the torsion method under a load of 11 kg/mm² (15600 psi) which was almost sufficient to give a rate of creep of 10^{-6} mm/mm per hour between the 24th and 48th hour. Steel 16 has a creep limit of 11 kg/mm² (15600 psi) according to both methods.

In this manner, the torsion test data permit of drawing the conclusion that a decrease of the carbon content in 14-14 steel to .13% C lowers its resistance to creep at 500° C on the whole by 10%, and at 600° C (1110° F), by 15%.

According to the test data on creep by tension, the steel with .45% C closely approaches the steels with .22 and .13% C.

6- C o n c l u s i o n.

Cr-W-Ni steel of the 14-14 type with .15% C has high temperature strength values which are somewhat inferior to those of 14-14 steel with .45% C as may be seen clearly from the results of short-time tensile tests and less clearly from the creep test data.

In regard to the ductility, structural stability and resistance to embrittlement at increased temperature, this steel is better than the steel with .45% C. The same is true in regard to carbide segregation.

In view of the technological difficulties obstructing the melting of a steel with 0.1% C, 14-14 steel with about 0.2% C is acceptable; such a steel, furthermore, would possess considerable ductility and sufficient structural stability, although this stability is somewhat lower than in steel with .1% C. In regard to high temperature strength, this steel is superior to the steel with .1% and does not differ greatly from 14-14 steel with .45% C.

From what has been said before, the conclusion may be drawn that 14-14 steel with .10-.20% C offers a substitute for 14-14 steel with .45% C for a variety of articles which require high ductility at temperatures up to 800-850° C (1470-1560° F) and are expected to carry appreciable loads.

More specifically, the high degree of ductility of 14-14 steel with .1-.2% C in the hot and cold state makes possible its use for all-drawn steel tubing of considerable high temperature strength such as has not been produced as yet in this country. Trials made at the Liebknecht tube mills at Dnepro-Petrovsk point in this direction.

R e f e r e n c e s:

(1) A. Borzdika, "Heat Resistant and High Temperature Strength Steels", (Book), ONTI, 1937, pp. 94-102, 122-127 and 144-147;

(2) A. Borzdika, KACHESTVENNAYA STAL, 1934, No. 2;

(3) N. Minkevich and A. Borzdika, METALLURG, 1939, No. 1;

(4) N. Fridman, KACHESTVENNAYA STAL, 1937, Nos. 5-6;

(5) N. Gudtsov and P. Komyakov, METALLURG, 1935, No. 3;

(6) A. Borzdika and S. Volfson, KACHESTVENNAYA STAL, 1937, No. 2;

(7) P. Mikhailov-Mikheyev, KACHESTVENNAYA STAL, 1936, No. 3.

25X1

Erste Zusammenstellung

von Worten, Ausdruecken und Abkuerzungen aus der sowjetischen Wirtschaft.

ASSR abbr. Avtonomnaya Sovetskaya Sotsialisticheskaya Respublika	Autonome Sozialistische Sowjet-Republik
Avtobaza	Kraftfahrzeugbasis (Staedtische oder bezirkliche Stelle fuer die Verwaltung u. Zuteilung von Kraftfahrzeugen)
DOK abbr. Derevo-obdelochnyy Kombinat	Holzverarbeitungskombinat
Domennyy Tsekh	Hochofenabteilung (Kriegsgefangenenbezeichnung "Domino")
Domna	Hochofen (Kriegsgefangenenbezeichnung "Dom", "Doma")
Ferrosplavnyy Zavod	Eisenlegierungswerk
Gazoprovod	Gasleitung
GES abbr. Gosudarstvennaya Elektricheskaya Stantsiya	Staatliches Kraftwerk, Kraftwerk
Gidro	in Zusammensetzungen: Wasser
Gidromontazh	Werk fuer Wasserbauten
Glav	in Zusammensetzungen: Hauptverwaltung
Glavmet abbr. Glavnoye Metallurgicheskoye Upravleniye	Hauptverwaltung Metallurgie
Glavsevmorput abbr. Glavnoye Upravleniye Severnogo Morskogo Puti	Hauptverwaltung des Noerdlichen Seeweges
Gorkom abbr. Gorodskoy Komitet	Stadtkomitee (der Kommunistischen Partei)
Gorsovet abbr. Gorodskov Sovet	Stadtsowjet
GPU abbr. Gosudarstvennoye Politicheskoye Upravleniye	Staatliche Politische Verwaltung, Politische Polizei. Heute: MVD
GRES abbr. Gosudarstvennaya Rayonnaya Elektricheskaya Stantsiya	Staatliches Bezirkskraftwerk
Imeni	namens, zu Ehren. In Verbindung mit Fabrikbezeichnungen, z.B. Zavod imeni Lenina (Leninwerk)
Kav abbr. Kavkazskiy	Kaukasisch, Kaukasus- in zusammengesetzten Worten, z.B. Kavtsink (Kaukasuszinkwerk)
Kaz abbr. Kazakhstanskiy	Kazakhisch, Kazakhstan- in zusammengesetzten Worten, z.B. Kazzoloto (Trust "Kazakhstan-Gold")

Worte, Ausdruecke und Abkuerzungen aus der sowjet. Wirtschaft.

II

Khim abbr. Khimicheskiy	Chemisch, Chemie- in zusammengesetzten Worten, z.B. Khimzavod (Chemisches Werk)
Kolkhoz abbr. Kollektivnoye Khozyaystvo)	Kollektivwirtschaft, gemeinsam bewirtschafteter landwirtschaftlicher Betrieb.
Komsomol abbr. Kommunisticheskiy Soyuz Molodezhi	Kommunistischer Jugendbund
Komsomolets	Jungkommunist. Das Wort wird auch als Name fuer Fabriken verwendet.
Kombinat	Kombinat, Vereinigung verschiedener miteinander verbundener Werke zu einem Grossbetrieb.
Kozhzavod abbr. Kozhevennyy Zavod	Lederfabrik
Krasnyy Oktyabr	Roter Oktober (Jahresmonat der bolschewistischen Revolution). Haeufiger Name von Fabriken.
Kray	Gau, Gebiet (Sowjetischer Verwaltungsbezirk, z.B.Krasnodarskiy Kray - Gau Krasnodar)
Kuzbass abbr. Kuznetskiy Basseyn, Kuznetskiy Kamennougol'nyy Basseyn [The Kuznetsk Basin includes the whole industrial area, and not just the coal industry there]	Kuznetsker Steinkohlenbecken
Kreking zavod	Krackanlage, Oelraffinerie
Magistral'	Hauptverkehrslinie, Hauptbahn, Hauptverkehrsstrasse, Hauptleitung
Mazut	Masut, Heizoel, Erdoelrueckstand
Metzavod abbr. Metallurgicheskiy Zavod	Metallurgisches Werk, Eisenhuettenwerk
MRZ abbr. Motoro-remontnyy zavod	Motorenreparaturwerk
MTS abbr. Mashinno-Traktornaya Stantsiya	Maschinen- und Traktorenstation
MVD abbr. Ministerstvo Vnutrennikh Del.	Ministerium fuer innere Angelegenheiten. Abkuerzung fuer: Politische Polizei
Myasokombinat	Fleischkombinat (Grossbetrieb fuer Gewinnung von tierischen Produkten)
Neftebaza	Treibstofflager, Tankstelle
Nefteprovod	Erdoelleitung
Nizhniy, Nizhne-	Unterer, Unter- (wird haeufig in Verbindung mit Orts-und Flussnamen angewandt).
NKVD abbr. Narodnyy Kommissariat	Volkskommissariat fuer innere Angelegenheiten. Frueher: Bezeichnung fuer Politische Polizei.

Novyy, Novo-	Neu, Neu-. (wird haeufig in Verbindung mit Ortsnamen angewandt).
Obl abbr. Oblast'	Oblast, Gebiet (Sowjetischer Verwaltungsbezirk von der Groesse einer Provinz).
Partkom abbr. Partiynyy Komitet	Parteikomitee
Polimetally	Polymetalle, Mehrmetalle (Blei, Zink)
Poselok	Siedlung, z.B. Rabochiy Poselok, Arbeitersiedlung
Profsoyuz abbr. Professional'nyy Soyuz	Gewerkschaft, Gewerkshaftsbund
Plotina	Staudamm, Talsperre (bei Kraftwerken)
Prokatnyy	Walz, z.B. Prokatnyy Tsekh, Walzabteilung eines Werkes (Kriegsgefangenenbezeichnung "Prokat")
Pristan'	Landungsplatz, Schiffsanlegestelle (an einem Fluss)
Prom abbr. Promyshlennost' promyshlennyy	Industrie, industriell. Haeufig in Zusammensetzungen, z.B. Promtovar, Industrieware
Promstroy abbr. Promyshlennoye Stroitel'stvo	Industrielles Bauvorhaben
Redmet abbr. Redkiye Metally	Seltene Metalle (z.B. Gold, Platin Wolfram)
Rayon	Rayon, Bezirk (Sowjetischer Verwaltungsbezirk: Ein Oblast zerfaellt in eine Anzahl Rayons).
RSFSR abbr. Rossiyskaya Sovetskaya Federativnaya Sotsialisticheskaya Respublika	Russische Sozialistische Foederative Sowjetrepublik
Remontnyy, Remontno-	Reparatur-. In Zusammensetzungen, z.B. Avtoremontnyy Zavod, Autoreparaturwerk
Ruda	Erz
Rudnik	Erzgrube, Erzbergwerk
Rudoupravleniye	Erzgrubenverwaltung
Sel' abbr. Sel'skiy	Land-, Dorf-. In Zusammensetzungen, z.B. Sel'sovet, Dorfsowjet.
Sel'mash abbr. Zavod sel'skokhozyaystvennogo mashinostroyeniya	Fabrik fuer landwirtschaftlichen Maschinenbau
Serp i Molot	Sichel und Hammer (Sowjetwappen) Haeufig vorkommender Name von Fabriken.
Sov abbr. Sovet, Sovetskiy	sowjetisch, Sowjet-. Staats- in Zusammensetzungen

Worte, Au...
...en der sowjet. Wirtschaft

I.

Sovkhoz abbr. Sovetskoye Khozyaystvo	Sowjetisches Staatsgut
Sots abbr. Sotsialisticheskiy	Sozialistisch, in Zusammensetzungen, z.B. Sotsgorod, Sozialistische Stadt
SSSR abbr. Soyuz Sovetskikh Sotsialisticheskikh Respublik	Union der Sozialistischen Sowjetrepubliken, UdSSR
SSR abbr. Sovetskaya Sotsialisticheskaya Respublika	Sozialistische Sowjetrepublik
Shakhta	Kohlenschacht-, grube,-bergwerk
Stal'	Stahl, als Wortendung: Stahlwerk z.B. Azovstal', Azovstahlwerk.
Staryy, Staro	alt, Alt-(wird haeufig in Verbindung mit Ortsnamen angewandt)
Severnyy,Severo, Sev	noerdlich, Nord-
Stroy	in Zusammensetzungen: Grossbauvorhaben, im Bau begriffenes Werk, z.B. Dneprostroy, Bau des Dneprkraftwerkes.
Stantsiya	Station, Bahnhof
TETs abbr. TeploelektroTsentral'	Waermekraftwerk, Heiz- und Waermekraftwerk
Tsekh	Abteilung eines Werks
Tsentner	Doppelzentner (100 kg)
Tsvetmet abbr. Tsvetnyye Metally	Buntmetalle, NE-Metalle (z.B. Kupfer, Zink, Zinn).
Truba	Rohr, Roehre. Als Werksbezeichnung: "Krasnaya Truba", "Rotes Rohr"
Ugol'	Kohle. Am Wortende bezeichnet es ein Kombinat oder einen Trust der Kohlenindustrie, z.B! "Tulaugol", Kombinat Tulaugol
Ulitsa	Strasse
Univermag abbr. Universal'nyy Magazin	Warenhaus
Upravleniye	Leitung, Verwaltung, Direktion.
Verkhniy, Verkhne-_	ober, Ober- (wird haeufig in Verbindung mit Orts- und Flussnamen angewandt)
Vodoprovod	Wasserleitung
Vostochnyy,Vostochno-,Vost	Oestlich, Ost-
Vuz abbr. Vyssheye Uchebnoye Zavedeniye	Hochschule

Worte, Ausdruecke und Abkuerzungen aus der sowjet. Wirtschaft.

I.

VKP(b) abbr. Vsesoyuznaya Kommunisticheskaya Partiya (Bolsheviki)	Kommunistische Partei der Sowjetunion (Bolschewiki).
VTsIK abbr. Vsesoyuznyy Tsentral'nyy Ispolnitel'nyy Komitet	Zentral-Exekutivkomitee der Sowjetunion
Yuzhnyy, Yuzhno-, Yuzh	Suedlich, Sued-
Zapadnyy, Zapadno-, Zap	Westlich, West-
Zavod	Fabrik, Work

Approved For Release 2003/12/04 : CIA-RDP80-00926A002100060019-4

6. Worte, Ausdruecke und Abkuerzungen aus der Sowjet. Wirtschaft und Verwaltung.

II.

ABZ	–	ASFAL'TO-BETONNYY ZAVOD – Asphalt-Betonwerk
BTTO K	–	"BUD'TE GOTOV" – soviel wie "Seid bereit" Wehrsportabzeichen ohne Schiessuebung
DSR	–	DOROZHNO-STROITEL'NYY RAYON – Wegebaubezirk
DU	–	DOROZHNYY UCHASTOK – Wegeabschnitt
I	–	Internirovannyy – Internierter
ITK	–	ISPOLNITEL'NAYA TRUDOVAYA KOLONIYA – Schwerarbeit ausfuehrende Kolonie – Strafgefangene
KHOZO	–	KHOZYAYSTVENNYY OTDEL – Wirtschaftsabteilung
KEO	–	KVARTIRNO-EKONOMICHESKIY OTDEL – Wohnungs-und oekonomische Abteilung
MKO	–	MEKHANICHESKIY-KONSTRUKTIVNYY OTDEL – Mechanische konstruktive Abteilung
MRP	–	MASHINO-REMONTNYY PUNKT – Maschinen-Reparaturstelle
MTS	–	MASHINO-TRAKTORNAYA STANTSIYA – Maschinen-Traktoren Station
ODP	–	OFITSERNYY DOPOLNITEL'NYY PAYEK – Zusaetzliches Tagegeld fuer Offiziere
OChO	–	OPERATIVNYY CHEREZVUCHAYNYY (CHEKISTSKIY) OTDEL – Operative ausserordentliche (Tschekisten) Abteilung
OK	–	OZDRAVITEL'NYY KONTINGENT – Genesungskontingent
OK	–	OSLABLENNAYA KOMANDA – Geschwaechtes Kommando
OSMU	–	OSOBYY STROITEL'NO-MATERIAL'NYY UCHASTOK – Besonderer Baumaterialabschnitt
PPCh	–	PLANOVO-PROIZVODSTVENNAYA CHAST' – Plan-Fertigungseinheit
PPO	–	PLANOVO-PROIZVODSTVENNYY OTDEL – Plan-Fertigungsabteilung
PTCh	–	PLANOVO-TEKHNICHESKAYA CHAST' – Plan-Technische Einheit
PTO	–	PLANOVO-TEKHNICHESKIY OTDEL – Plan-Technische Abteilung
RO	–	RAYONNYY OTDEL – Bezirksabteilung
SANO	–	SANITARNYY OTDEL – Sanitaetsabteilung
SMU	–	STROITEL'NO-MATERIAL'NYY UCHASTOK – Baumaterialabschnitt

/Presumably error for "BGTO" - "Bud' gotov za truda i oborony" - "Be ready for labor and defense!". Segal's and Mueller's dictionaries give simply "GTO" as the initials for both the slogan and the badge - "Ready for labor and defense!"/

SU	–	STROITEL'NYY UCHASTOK – Baugrossabschnitt
STZ	–	STALINGRADSKIY TRAKTORNYY ZAVOD – Stalingrader Traktorenwerk
TO	–	TYUREMNYY OTDEL – Gefaengnisabteilung Strafvollzugsabteilung
TO	–	TRANSPORTNYY OTDEL – Transportabteilung
UKS	–	UPRAVLENIYE KUL'T STROYA – Verwaltung fuer das kulturelle Bauwesen
FINO	–	FINANTSOVYY OTDEL – Finanzabteilung
FPL	–	FRONTOPOLEVOY LAGER" – Frontfeldlager
V/N	–	VOL'NO NAYEMNYY – "Freier Arbeiter" Dienstverpflichteter
V/P	–	VOYENNOPLENNYY – Kriegsgefangener
VK	–	VSPOMOGATEL'NAYA KOMANDA – Hilfskommando
Z/K	–	ZAKLYUCHENNYY – Strafgefangener

Worte, Ausdruecke und Abkuerzungen aus der Sowjet. Wirtschaft und Verwaltung.

II.

ABZ	–	ASFAL'TO-BETONNYY ZAVOD – Asphalt-Betonwerk
BTTO *	–	"BUD'TE GOTOV" – soviel wie "Seid bereit" Wehrsportabzeichen ohne Schiessuebung
DSR	–	DOROZHNO-STROITEL'NYY RAYON – Wegebaubezirk
DU	–	DOROZHNYY UCHASTOK – Wegeabschnitt
I	–	Internirovannyy – Internierter
ITK	–	ISPOLNITEL'NAYA TRUDOVAYA KOLONIYA – Schwerarbeit ausfuehrende Kolonie – Strafgefangene
KHOZO	–	KHOZYAYSTVENNYY OTDEL – Wirtschaftsabteilung
KEO	–	KVARTIRNO-EKONOMICHESKIY OTDEL – Wohnungs-und oekonomische Abteilung
MKO	–	MEKHANICHESKIY-KONSTRUKTIVNYY OTDEL – Mechanische konstruktive Abteilung
MRP	–	MASHINO-REMONTNYY PUNKT – Maschinen-Reparaturstelle
MTS	–	MASHINO-TRAKTORNAYA STANTSIYA – Maschinen-Traktoren Station
ODP	–	OFITSERNYY DOPOLNITEL'NYY PAYEK – Zusaetzliches Tagegeld fuer Offiziere
OChO	–	OPERATIVNYY CHEREZVUCHAYNYY (CHEKISTSKIY) OTDEL – Operative ausserordentliche (Tschekisten) Abteilung
OK	–	OZDRAVITEL'NYY KONTINGENT – Genesungskontingent
OK	–	OSLABLENNAYA KOMANDA – Geschwaechtes Kommando
OSMU	–	OSOBYY STROITEL'NO-MATERIAL'NYY UCHASTOK – Besonderer Baumaterialabschnitt
PPCh	–	PLANOVO-PROIZVODSTVENNAYA CHAST' – Plan-Fertigungseinheit
PPO	–	PLANOVO-PROIZVODSTVENNYY OTDEL – Plan-Fertigungsabteilung
PTCh	–	PLANOVO-TEKHNICHESKAYA CHAST' – Plan-Technische Einheit
PTO	–	PLANOVO-TEKHNICHESKIY OTDEL – Plan-Technische Abteilung
RO	–	RAYONNYY OTDEL – Bezirksabteilung
SANO	–	SANITARNYY OTDEL – Sanitaetsabteilung
SMU	–	STROITEL'NO-MATERIAL'NYY UCHASTOK – Baumaterialabschnitt

25X1

* Presumably error for "BGTO" – "Bud' gotov za truda i oborony" – "Be ready for labor and defense!" [redacted] Mueller's and Segal's dictionaries [redacted] the initials for both the badge and slogan are merely "GTO" – "ready for labor and defense".

25X1

(over)

SU	–	STROITEL'NYY UCHASTOK – Baugrossabschnitt
STZ	–	STALINGRADSKIY TRAKTORNYY ZAVOD – Stalingrader Traktorenwerk
TO	–	TYUREMNYY OTDEL – Gefaengnisabteilung Strafvollzugsabteilung
TO	–	TRANSPORTNYY OTDEL – Transportabteilung
UKS	–	UPRAVLENIYE KUL'T STROYA – Verwaltung fuer das kulturelle Bauwesen
FINO	–	FINANTSOVYY OTDEL – Finanzabteilung
FPL	–	FRONTOPOLEVOY LAGER" – Frontfeldlager
V/N	–	VOL'NO NAYEMNYY – "Freier Arbeiter" Dienstverpflichteter
V/P	–	VOYENNOPLENNYY – Kriegsgefangener
VK	–	VSPOMOGATEL'NAYA KOMANDA – Hilfskommando
Z/K	–	ZAKLYUCHENNYY – Strafgefangener